HDV-HDMI-TZ HDV-HDMI-RZ-K
HDV-HDMI-RZ HDV-HDMI-TZ-A-K
HDV-HDMI-TZ-K HDV-HDMI-RZ-A-K

BLACK BOX NETWORK SERVICES

HD View HDMI Transmitter and Receiver

Extend real-time, full-HD digital media over ordinary CATx cable—and communicate via IP with remote Ethernet peripherals.

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FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

Normas Oficiales Mexicanas (NOM) Electrical Safety Statement

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Maximum Resolution — HDV-HDMI-TZ-K , HDV-HDMI-TZ, HDV-HDMI-RZ-K, HDV-HDMI-RZ: 1080p, 60 Hz, 24-bit per pixel, uncompressed

Mounting — VESA

MTBF — 400,000 hours

Speed — 100 Mbps Ethernet (for network ports only)

Connectors — HDV-HDMI-TZ-K, HDV-HDMI-TZ: (1) 1.65-mm connector for DC power, (1) DB9 serial, (1) RJ-45 for Ethernet, (1) DisplayPort, (1) HDMI, (1) RJ-45 for System;
HDV-HDMI-RZ-K, HDV-HDMI-RZ: (1) 1.65-mm connector for DC power, (1) 3.5-mm connector, (1) RJ-45 for System, (1) HDMI, (1) RJ-45 for Ethernet, (1) DB9 serial

Indicators — HDV-HDMI-TZ-K, HDV-HDMI-TZ: (3) LEDs: (1) Power, (1) Ethernet, (1) System;
HDV-HDMI-RZ-K, HDV-HDMI-RZ: (2) LEDs: (1) Ethernet, (1) System

Temperature Tolerance — Operating: 32 to 104° F (0 to 40° C); Storage: -40 to +185° F (-40 to +85° C)

Power — HDV-HDMI-TZ-K, HDV-HDMI-TZ, HDV-HDMI-RZ-K, HDV-HDMI-RZ: Each has (1) 12-VDC, 2-A power supply;
Consumption: HDV-HDMI-TZ, HDV-HDMI-TZ-K: 5 W;
HDV-HDMI-RZ-K, HDV-HDMI-RZ: 7 W

Size — HDV-HDMI-TZ-K, HDV-HDMI-TZ: 1.6"H x 5.4"W x 5.5"D (4 x 13.9 x 14 cm);
HDV-HDMI-RZ-K, HDV-HDMI-RZ: 1.1"H x 7.5"W x 4.8"D (2.7 x 19 x 12.3 cm)

Weight — HDV-HDMI-TZ-K, HDV-HDMI-TZ, HDV-HDMI-RZ, HDV-HDMI-RZ-K: 0.8 lb. (0.36 kg) each unit

2. Overview

2.1 Introduction

The HD View™ HDMI Transmitter and Receiver system delivers real-time digital non-compressed content to digital signage terminals up to 2000 feet (300 m) away (when cascaded).

2.2 Features

The HD View HDMI offers the following high-level capabilities:

- Media distribution
- Display serial control
- Terminal IP connectivity
- Scalability

2.3 What's Included

Your package should include the following items. If anything is missing or damaged, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.

HDV-HDMI-TZ-K:

- HD View HDMI Transmitter
- Power adapter
- This user's manual

HDV-HDMI-RZ-K:

- HD View HDMI Receiver
- Power adapter
- This user's manual

HDV-HDMI-TZ:

- HD View HDMI Transmitter

- 5-foot (1.5-m) HDMI cable, male/male black jacket
- 6-foot (1.8-m) CAT5 cable, 24 AWG
- 6-foot (1.8-m) DisplayPort cable
- DB9 serial cable
- Power adapter
- This user's manual

HDV-HDMI-RZ:

- HD View HDMI Receiver
- 5-foot (1.5-m) HDMI cable, male/male black jacket
- 6-foot (1.8-m) CAT5 cable, 24 AWG
- 3.5-mm monitoring cable
- DB9 serial cable
- Power adapter
- This user's manual

HDV-HDMI-TZ-A-K:

- 5-foot (1.5-m) HDMI cable, male/male black jacket
- 6-foot (1.8-m) CAT5 cable, 24 AWG
- 6-foot (1.8-m) DisplayPort cable
- DB9 serial cable

HDV-HDMI-RZ-A-K:

- 5-foot (1.5-m) HDMI cable, male/male black jacket
- 6-foot (1.8-m) CAT5 cable, 24 AWG
- 3.5-mm monitoring cable
- DB9 serial cable

2.4 Hardware Description

2.4.1 Transmitter

Figures 2-1 and 2-2 show the transmitter's front and back panels. Table 2-1 describes its components.

Figure 2-1. HDV-HDMI-TZ front panel.

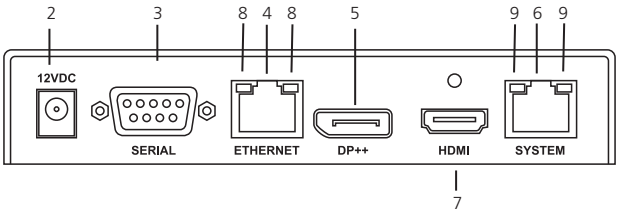

Figure 2-2. HDV-HDMI-TZ back panel.

Table 2-1. Transmitter front- and back-panel components.

Number	Component	Description
1	Power LED	Lights when power to the unit is on.
2	1.65-mm connector	Links to 12-VDC power in.
3	DB9 connector	Links to serial port for terminal control.
4	RJ-45 connector	Used for IP extension.
5	DisplayPort	Connects to DP++ player.
6	RJ-45 connector	Links system cable to the receiver.
7	HDMI	Connects to HDMI 1.3 player.
8	(2) Ethernet LEDs	(1) TX, (1) RX
9	(2) System LEDs	(1) TX, (1) RX

2.4.2 Receiver

Figure 2-3 shows the receiver's back panel. Table 2-2 describes its components.

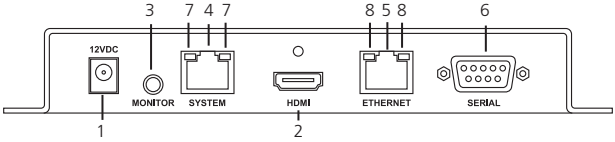

Figure 2-3. HDV-HDMI-RZ back panel.

Table 2-2. Receiver back-panel components.

Number	Component	Description
1	1.65-mm connector	Links to 12-VDC power in.
2	HDMI connector	Used for HDMI 3.1 communication to the display.
3	3.5-mm connector	Reserved for future use.
4	RJ-45 connector	Links to system cable from the transmitter.
5	RJ-45 conector	Used for IP connectivity to the display and/or peripherals.
6	DB9 connector	Used for serial control.
7	(2) System LEDs	(1) TX, (1) RX
8	(2) Ethernet LEDs	(1) TX, (1) RX

3. Installation

3.1 Compatible Cabling

The HDV-HDMI-TZ and HDV-HDMI-RZ products work with CAT5e/6/7 FTP/UTP network cable.

3.2 Pre-Installation Guidelines

Make sure that the player and the screens are compatibile. Check that they work together before connecting the HD View HDMI Transmitter and Receiver.

3.3 Media Distribution

The HD View HDMI Transmitter and Receiver can distribute HD digital media from a single player to a single display located 330 feet (100 m)away. Figure 3-1 illustrates this configuration.

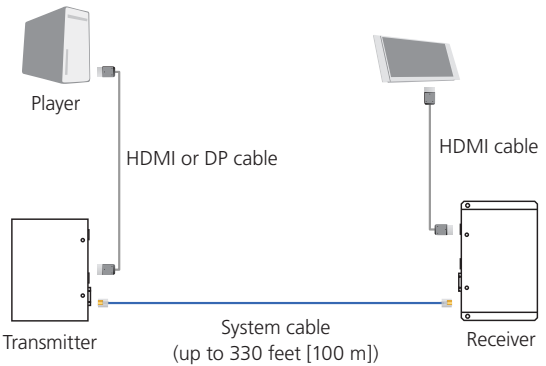

Figure 3-1. Media distribution to a single display.

Figures 3-2 and 3-3 illustrate all the connections to the HDV-HDMI-TZ series and HDV-HDMI-RZ products. Not all the connections are always needed. This section explains the basic connections. Sections 3.3.1–3.3.4 explain the circumstances that require additional connections.

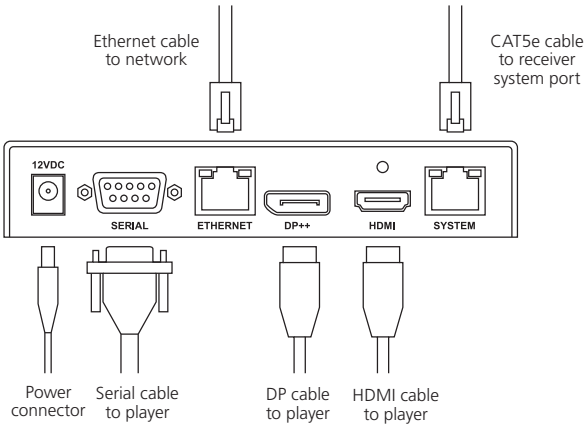

Figure 3-2. Transmitter connections.

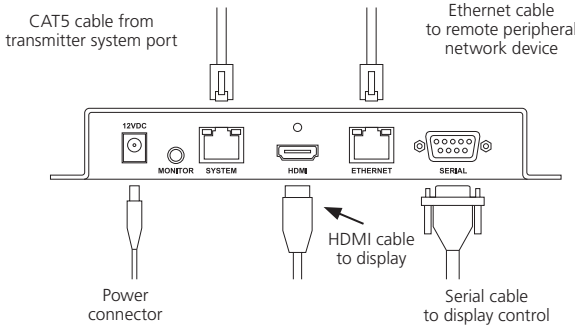

Figure 3-3. Receiver connections.

3.3.1 Connecting the Player and the Screen

Connect the player to the transmitter HDMI port using an HDMI-to-HDMI cable (Type A, male/male) or connect a DP cable to the DP port (DisplayPort male/male). If both are used and active, the HDMI will take priority.

Connect the screen to the receiver HDMI port using an HDMI-to-HDMI cable (Type A, male/male).

3.3.2 Connecting the System Cable

Connect a system cable (up to 330 feet [100 m]) between the system port of the transmitter and the system port of the receiver.

3.3.3 Connecting to the Power Supply

Connect the transmitter and receiver to the power supply with the included 12-V/2-A DC power adapters.

Once connected, the system is ready to transmit the video and audio signals.

3.3.4 Mounting the Receiver

The receiver has VESA standard screw holes, located 10-cm apart, as shown in Figure 3-4. Use two screws (included with the receiver and monitor) to connect the unit to the back of the monitor.

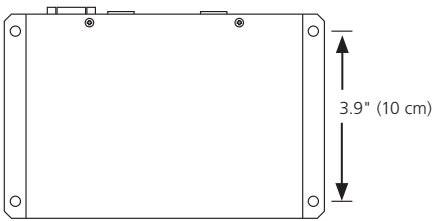

Figure 3-4. Mounting using the VESA screw holes on the receiver.

4. Operation

4.1 Serial Control

To enable serial control of remote displays:

1. Connect a serial (DB9 male/female) cable between the player and the transmitter.
2. Connect a serial (DB9 female/female) cable between the receiver and the screen.

Figure 4-1 illustrates the connections.

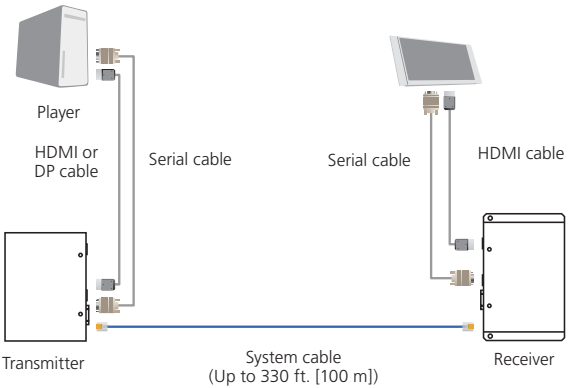

Figure 4-1. Serial control.

4.2 Terminal IP Connectivity

To extend a network from the transmitter side to the remote terminal side:

1. Connect a standard Ethernet cable (10-/100BASE-T cable, wired straight-through to conform to T568B standard) between the player side network and the transmitter.

2 Connect a standard Ethernet cable (10-/100BASE-T cable, wired straight-through to conform to T568B standard) between the receiver and the terminal side units.

After you make these connections, you can create an extended IP segment using the extension system.

NOTE: Make sure you have DHCP enabled on your network, because you cannot set/configure the IP addresses in the TX/RX units.

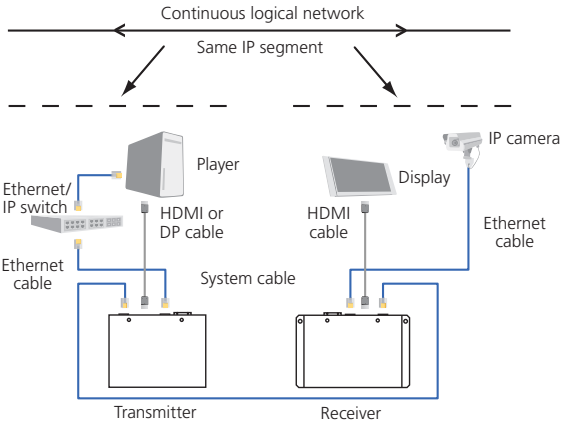

Figure 4-2. Terminal IP connectivity.

4.3 Scalability

Cascade a receiver with a transmitter to increase the system distance.

Cascading to Increase the Distance

Cascade up to six distribution systems to increase the distance up to 2000 feet (600 m). Figure 4-3 illustrates a two-hop cascaded system.

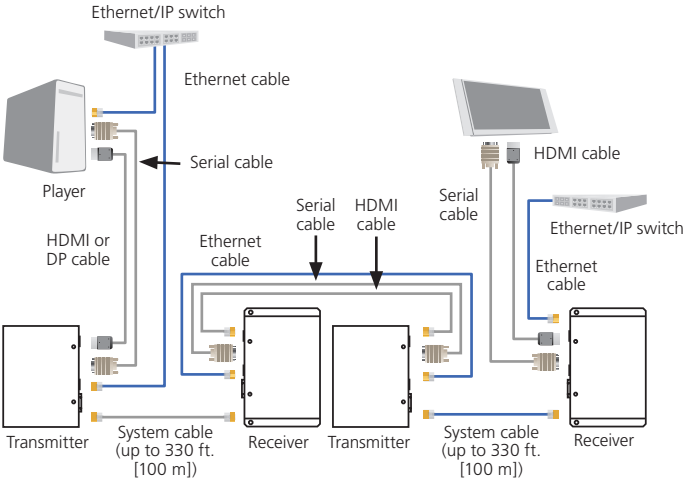

Figure 4-3. Hop cascaded system.

To connect the receiver to the transmitter, connect the following cables as shown in Figure 4-3:

- HDMI to HDMI (Type A, male/male).
- For serial control: Serial cable (DB9 male/female). See Section 4.1.
- For IP connectivity: Ethernet 10-/100BASE-T straight-through cable (T568B). See Section 4.2.

Figure 4-4 illustrates a hop cascaded system up to 2000 feet (600 m).

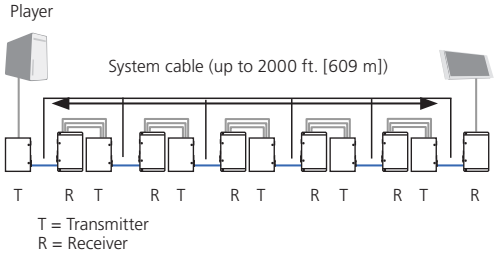

Figure 4-4. Six-hop cascaded system.

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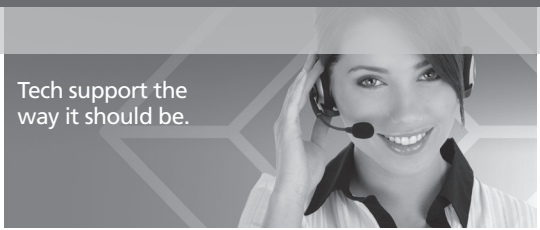

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